MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

VOL. XXXII. MARCH, 1904. No. 3

INTRODUCTION.

The MONTHLY WEATHER REVIEW for March, 1904, is based on data from about 3300 stations, classified as follows:

Weather Bureau stations, regular, telegraph, and mail, 167; West Indian Service, cable and mail, 4; River and Flood Service, regular 43, special river and rainfall, 190, special rainfall only, 56; voluntary observers, domestic and foreign, 2565; total Weather Bureau Service, 3025; Canadian Meteorological Service, by telegraph and mail, 20, by mail only, 13; Meteorological Service of the Azores, by cable, 2; Meteorological Office, London, by cable, 8; Mexican Telegraph Company, by cable, 3; Army Post Hospital reports, 18; United States Life-Saving Service, 9; Southern Pacific Company, 96; Hawaiian Meteorological Service, 75; Jamaica Weather Service, 130; Costa Rican Meteorological Service, 25; The New Panama Canal Company, 5; Central Meteorological Observatory of Mexico, 20 station summaries, also printed daily bulletins and charts, based on simultaneous observations at about 40 stations; Mexican Federal Telegraph Service, printed daily charts, based on about 30 stations.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. R. C. Lydecker, Territorial Meteorologist, Honolulu, Hawaii; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; Lieut. Commander H. M. Hodges, Hydrographer, United States Navy; H. Pittier, Director of the Physico-Geographic Institute, San José, Costa Rica; Commandant Francisco S. Chaves, Director of the Meteorological Service of the Azores, Ponta Delgada, St. Michaels, Azores; W. N. Shaw, Esq., Secretary, Meteorological Office, London; Rev. José Algué, S. J., Director, Philippine Weather Service; and H. H. Cousins, Chemist, in charge of the Jamaica Weather Office; Señor Enrique A. Del Monte, Director of the Meteorological Service of the Republic of Cuba.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is 157° 30′, or $10^h\ 30^m$ west of Greenwich. The Costa Rican standard meridian is that of San José, $5^h\ 36^m$ west of Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local standard is mentioned.

Barometric pressures, whether "station pressures" or "sea-level pressures," are now reduced to standard gravity, so that they express pressure in a standard system of absolute measures.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

Stormy weather prevailed over the eastern part of the Atlantic Ocean during the first decade of the month. From the 1st to the 6th the barometer continued low over the Bay of Biscay, Spain, and Portugal, and during the 7th and 8th a disturbance evidently moved from that region toward the Irish coast, where the barometer fell to 29.48 inches at Valentia. By the 9th this disturbance had apparently united with a barometic depression of great energy that appeared in the vicinity of the Azores, where, at Horta, the barometer fell rapidly to a minimum of 29.10 inches, with a maximum wind velocity of 60 miles an hour from the south. During the 13th and 14th a disturbance that was probably identical with a storm that passed eastward over Newfoundland during the 11th, crossed the north part of Scotland, and a disturbance that moved eastward over the Canadian Maritime Provinces on the 16th apparently passed north of the British Isles during the 19th. On the 22d a disturbance passed southeastward over the British Isles. From the 23d to 25th the barometer continued high over the British Isles, and fell from the 26th to 30th to a reported minimum of 29.00 at Stornoway, Scotland, with gales on the British coasts during the 29th and 30th.

In the United States there was a succession of disturbances that moved from the north Pacific coast southeastward over the Rocky Mountain districts to the Mississippi Valley, and thence northeastward over the Canadian Maritime Provinces.

The severest storm of the month appeared on the north Pacific coast during the night of the 9th, and on the morning of the 10th barometric pressure was below 29.00 inches on the Washington and Oregon coasts. The gales that attended this storm were severe from British Columbia to San Diego, Cal., and heavy rain fell in the coast districts and heavy snow in the mountain regions of the North Pacific States. After leaving the coast this storm rapidly lost intensity.

The Humboldt Standard, Eureka, Cal., of March 10, 1904, remarks as follows regarding the work of the Weather Bureau in connection with this storm:

> One of the most violent storms that ever occurred on the coast of northern California was heralded yesterday morning by the display of southeast storm warnings at the local Weather Bureau station. The warnings were ordered up by district forecaster McAdie twelve hours before the storm struck this city. All of the shipping in the bay having ample notice from the Weather Bureau there was no damage to vessels, all shipping being securely tied up, with no vessels at anchor.

Another severe storm appeared on the north Pacific coast on the 19th.

Chart II shows the remarkably uniform progression across the United States of the barometric depressions of the month, and the following are notable features reported in connection with the more important disturbances that traversed the country:

A disturbance that appeared on the north Pacific coast on the 1st moved rapidly south of east over the Plateau and